

RECEIVED  
CENTRAL FAX CENTERTomomi KATOH et al., S.N. 10/549,791  
Page 5

Dkt. 2271/75134

SEP 10 2007

REMARKS

The application has been reviewed in light of the Office Action dated June 8, 2007. Claims 1-10 are pending. By this Amendment, claims 1-3 have been amended to clarify the claimed subject matter, and claims 3-10 have been amended to depend from claim 1. Accordingly, claims 1-10 are presented for reconsideration, with claim 1 being in independent form.

Claims 1-10 were rejected under 35 U.S.C. § 102(b) as purportedly anticipated by Kusunoki et al. (WO 03/026897 A1).

The present application relates to an image reproducing and forming apparatus that is configured to reduce adverse influence of resonance and output an image with improved print quality.

For example, claim 1 is directed to an image reproducing and forming apparatus comprising an ejection head configured to eject a liquid droplet from a nozzle to form an image on a medium, a driving signal generating unit configured to generate a driving waveform, and a driving unit configured to drive the ejection head based on the driving signal supplied from the driving signal generating unit. In particular, the driving waveform generated by the driving signal generating unit includes an ejecting pulse for causing the liquid droplet to be ejected from the nozzle and another pulse. Further, the driving signal generating unit selects a desired waveform from the driving waveform to produce a driving signal, and produces a non-ejecting pulse making use of different portions of the driving waveform, with the non-ejecting pulse having a pulse width greater than that of the ejecting pulse, while producing energy for not ejecting the droplet.

The non-ejecting pulse configured as in the subject matter of claim 1 of the present

Tomomi KATOH et al., S.N. 10/549,791  
Page 6

Dkt. 2271/75134

application is produced to excite the head. Accordingly, the non-ejecting pulse in the subject matter of claim 1 has a greater pulse width, but is controlled so as not to eject the ink droplet (see Fig. 9A and Fig.9E, and corresponding description in the English-language specification).

Kusunoki, as understood by Applicant, proposes a head driving control apparatus for driving a pressure generation part in a droplet discharging head. The head driving control apparatus outputs a driving signal including a first waveform element for contracting the volume of a pressurizing chamber without discharging a droplet, a second waveform element for keeping a contracted state until a meniscus in a nozzle moves toward the pressurizing chamber, a third waveform element for expanding the volume of the pressurizing chamber from the contracted state, a fourth waveform element for keeping an expanded state, and a fifth waveform element for contracting the volume of the pressurizing chamber to discharge a droplet.

While Kusunoki (Fig. 16 and page 37, lines 8-16) proposes a non-ejecting pulse, such a non-ejecting pulse as proposed by Kusunoki is generated as a part of the driving waveform, and multiple ejecting pulses with different amounts of droplets are generated by combining two or more pulses. Further, the non-ejecting pulse proposed by Kusunoki is produced for the purpose of preventing the meniscus of the nozzle from drying or increasing its viscosity, and for this reason, the non-ejecting pulse is produced so as to be as short as possible.

In contrast, the non-ejecting pulse in the subject matter of claim 1 is produced to excite the head, and the short pulse as proposed by Kusunoki for stimulating the meniscus is insufficient for achieving such a result.

In addition, Kusunoki does not teach or suggest that the non-ejecting pulse is produced making use of different portions of the driving waveform.

Applicant simply does not find teaching or suggestion in the cited art of an image

Tomomi KATOH et al., S.N. 10/549,791  
Page 7

Dkt. 2271/75134

reproducing and forming apparatus comprising a driving signal generating unit which is configured to generate a driving waveform that includes an ejecting pulse for causing the liquid droplet to be ejected from the nozzle and another pulse, select a desired waveform from the driving waveform to produce a driving signal, and produce a *non-ejecting pulse making use of different portions of the driving waveform*, with the *non-ejecting pulse having a pulse width greater than that of the ejecting pulse, while producing energy for not ejecting the droplet*, as provided by the subject matter of claim 1 of the present application.

Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claim 1 and the claims depending therefrom are patentable over the cited art.

In view of the remarks hereinabove, Applicant submits that the application is now in condition for allowance, and earnestly solicits the allowance of the application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Patent Office is hereby authorized to charge any fees that are required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



Paul Teng, Reg. No. 40,837  
Attorney for Applicant  
Cooper & Dunham LLP  
Tel.: (212) 278-0400